

## **Intervention Strategies to Increase Helmet Use in Alaska Villages.**

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### **ABSTRACT**

The Northwest Arctic Borough region (NWAB) of Alaska has one of the State's highest injury rates associated with all-terrain vehicle (ATV) and snowmobile operation. ATV and snowmobiles head injuries, account for 16.7% of hospitalizations in the region. Three intervention strategies were evaluated for their effectiveness in increasing helmet use among ATV and snowmobile riders. Nine villages were selected and divided into three groups. Each group had three test villages; Group I villages were controls, Group II villages had helmets available at a reduced cost and provided educational and promotional materials, and Group III villages had helmets available at reduced cost, provided educational/promotional materials, and utilized local role models. Observations showed an increase in helmet use within villages of Groups II and III. There was no helmet use in Group I villages.

### **INTRODUCTION**

Since the introduction of all-terrain vehicles (ATVs) and snowmobiles in rural Alaska, their use has become the primary mode of transportation. These vehicles support hunting, fishing, recreation, and general transportation within and between the villages of Northwest Alaska. As with most motor operated vehicles, there is an elevated risk of injury associated with their use.

Eleven villages are located within the 36,000 square miles of the Northwest Arctic Borough (NWAB) region of Alaska. Winters last at least seven months, beginning in mid-September and continuing until late April or early May. Terrain in the region varies widely from mountains to sand dunes to tundra to boreal forests. Five major river systems drain from the mountains down to the Chuckchi Sea. Northwest Alaska's rural lifestyle and harsh environment contribute to the State's high injury-related mortality and morbidity.

According to the Alaska State Trauma Registry, there were 13,107 hospitalized injuries in the State of Alaska during the years 1991-93. Almost 6.5% (836) of these injuries were identified with snowmobile and ATV operation, which translates to a rate of 51/100,000. During this same time period, there were 355 hospitalized injuries in the NWAB, 27% (96) were ATV/snowmobile related, a rate of 337/100,000, over six times that of the all-Alaska rate. Head injuries accounted for 17% of those injury hospitalizations resulting from ATV/snowmobile use. Data obtained from patient charts at the Maniilaq Medical Center in Kotzebue for the ten-year period 1985-1994, show that there were 218 total head injuries associated with ATVs and snowmobile mishaps in the NWAB region that required medical treatment. Among both males and females, the majority of injuries occurred in the 20-39 year old age group. Of the total 218 head injuries, 161 or 74% were males.

Increasing helmet use is one intervention strategy that would reduce the risk of head injury identified with ATV and snowmobile operations. Research has shown that the risk of death could be reduced by 42% and the risk of non-fatal head injury by 64% by using helmets (Rogers, 1990). In rural Alaska, where ATV's and snowmobiles are major modes of travel, casual observations have shown that fewer than 5% of ATV riders wear helmets (Sloan 1992). The barriers to helmet use must be identified and reduced to help decrease the risk of head injury. Role models and increased helmet availability have been suggested as a strategy to promote helmet use in rural Alaska (Welch 1993).

During this study, three intervention strategies were implemented in an attempt to persuade individuals to wear helmets while riding on ATV's and snowmobiles. This paper compares the results of those different strategies.

## METHODS

The eleven-week study was conducted from October 23, 1994 through January 6, 1995. Prior to the study, personal interviews were conducted among village residents by the Office of Environmental Health, Maniilaq Association, to determine the preferred type of helmet that riders would consider wearing. Most riders interviewed preferred black or white open-faced helmets with separate goggles. Helmets and goggles were purchased in bulk with financial support from the Alaska Area Injury Prevention Program and a grant from the Alaska Safe Kids Program. A total of 90 helmets/goggles were purchased and distributed to test villages.

Nine villages in the NWAB region were selected and categorized into three groups of small, medium, and large, according to population. One village was drawn from a group of the three large villages and identified as part of Group I, the second village drawn from the large group was made part of Group II, and the remaining village was identified as part of Group III. This selection process was repeated with the medium, and small villages. Group I served as a control with no intervention strategies implemented. Within Group II, helmets and goggles were made available for the reduced cost of forty dollars and educational/promotional materials were distributed throughout the villages. In Group III, helmets and goggles were made available (\$40) along with educational/promotional materials, and local role models were used.

Observers were selected in all nine villages to count riders of ATV and snowmobiles, identifying those with or without helmets. Observers were given a standard form to gather data and each observer was paid for their services. Observations were conducted at a standardized location (local post offices) from 4:00 p.m. to 5:00 p.m., Monday through Saturday for eleven weeks. During the first two weeks of the study, and before intervention strategies were implemented, baseline observations were conducted to determine the number of riders who wore helmets and those who did not wear helmets. Beginning with week number three, helmets/goggles, educational information, and role models were then introduced to selected group of villages.

Helmets were sold at village health clinics in Groups II and III. Health clinic personnel sold helmet/goggles and kept tallies of the total sales per week. Educational information was distributed at strategic areas in each of these villages i.e., post offices, health clinics, schools, and retail stores. Role models in Group III villages were required to wear a helmet each time they rode their vehicle. Also, role models agreed to promote the need for wearing helmets by speaking at public meetings and whenever opportunities arose with individual residents. The role models were given a free helmet with goggles for their help in promoting helmet use.

## RESULTS

The objective of the study was to evaluate the effectiveness of intervention strategies to increase helmet use. In Group I, there were 1,625 total observations with no helmets observed before or after the intervention. In Group II, there were 698 observations during the two weeks before intervention with no helmet use observed. After the intervention took place eight helmets were observed out of a total of 2,142 observations. In Group III, one helmeted rider was observed out of 974 total pre-intervention observations. Forty nine of 2,135 riders observed after the intervention in Group III were wearing helmets. Seventy of the ninety helmets available were purchased during the study. Seventeen helmets were sold in Group II and fifty-three helmets were sold in Group III.

There was also an unanticipated benefit to the study. One retail store owner in the NWAB region reported a 30% increase in helmet sales during the study period.

## DISCUSSION

Pre-intervention observations showed that almost no helmets were being worn. Making helmets available and

educational strategies had some effect on increased helmets use. However, the combination of all three intervention strategies; making helmets available, providing educational information, and using role models was most effective in promoting increased helmet usage.

Helmet availability in local health clinics combined with reduced cost, appeared to increase helmet sales. Clinics proved to be a good centralized location for sales, possibly due to the flow of individuals who frequented the clinics for other health needs. Also, health aides were available to describe the helmet study, answer questions about educational materials and promote helmet sales.

The study was conducted for a limited length of time due to constraints from the study completion date. Therefore, a longer intervention period might have resulted in a further increase in the number of helmets sold as well as the number of helmets observed. Helmets continued to be sold after the conclusion of the study. The remaining helmets (20) were sold within one week.

Additional information, such as observations conducted at different times of day, on trails or strategic locations leading out of town, or different locations within villages, might have enhanced study results. It was speculated that helmets may be used on long distance rides more often than for local travel within village limits. Individuals may not wear a helmet to go to the store if a helmet becomes an object to carry in the store while shopping. As a comparison, many individuals may not wear seat belts for short trips in automobiles, but might wear them on a longer trip.

Cultural barriers such as wearing traditional fur hats for warmth in the cold climate may have contributed to reduced helmet use by some NWAB residents. Some residents felt that the helmets looked out of place as opposed to a traditional parka hood or fur hat, and some hunters felt that helmets limited their peripheral vision. However, anecdotal information indicated that many residents were surprised to find the helmets comfortable, as well as warm. The preferred color for helmets was black.

## **CONCLUSION**

Intervention strategies in Group II and III villages resulted in a small but definite increase in helmet usage in the Northwest Arctic Borough region. Marketing strategies such as using village health clinics for sales distribution sites, seasonal timing, role models, helmet color and style preferences, and reduced cost played a key role in increased helmet sales. Recommendations for further studies would be to increase study time, reduce cultural barriers, promote in-depth safety education related to helmet use, and to promote a mandatory law requiring helmets be worn on any ATV or snowmobile.

The combination of role models, helmet availability, and reasonable cost proved to be an effective intervention strategy to promote helmet use in rural areas. Although this study was done on a small scale and completed in a limited time frame, other rural regions could benefit from a similar project to promote helmet use and reduce head injuries related to ATV and snowmobile operations.

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